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| APPLICATION NO.  | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|---------------------|------------------|
| 10/798,146   | 03/11/2004  | Antony K. Spilman    | 30030483 US02       | 5575             |
| 57299  | 7590        | 08/07/2007           | EXAMINER            |                  |
| Kathy Manke<br>Avago Technologies Limited<br>4380 Ziegler Road<br>Fort Collins, CO 80525 |             |                      | LIU, LI             |                  |
|  |             | ART UNIT             |                     | PAPER NUMBER     |
|  |             | 2613                 |                     |                  |
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

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|                              |                        |                     |  |
|------------------------------|------------------------|---------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b> | <b>Applicant(s)</b> |  |
|                              | 10/798,146             | SPILMAN ET AL.      |  |
|                              | <b>Examiner</b>        | <b>Art Unit</b>     |  |
|                              | Li Liu                 | 2613                |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on 24 July 2007.

2a) This action is FINAL.                    2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 1-13 is/are pending in the application.

4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5) Claim(s) \_\_\_\_\_ is/are allowed.

6) Claim(s) 1-13 is/are rejected.

7) Claim(s) \_\_\_\_\_ is/are objected to.

8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on 11 March 2004 is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All    b) Some \*    c) None of:

- Certified copies of the priority documents have been received.
- Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
- Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) Notice of References Cited (PTO-892)                    4) Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_

2) Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_

5) Notice of Informal Patent Application

6) Other: \_\_\_\_\_

## DETAILED ACTION

### ***Response to Amendment***

1. In view of the amendment, the Final Office Action mailed on 24 May 2007 has been withdrawn. A new Office Action in response to the amendment is as follows.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-3, 9 and 12 are rejected under 35 U.S.C. 102(e) as being anticipated by Alb et al (US 6,760,391).

1). With regard to claim 1, Alb et al discloses a rate adaptive system for optical communication networks (Figures 3-10, column 4, line 20-24) comprising:

a plurality of optical transceivers (305, 310, 405 and 410 in Figures 3 and 4, column 4, line 20-24) capable of transmitting and receiving signals at a plurality of rates to each other, and

an optical fiber linked to said transceivers (link 12-14 in Figures 1, 3 and 4, column 4, line 20-24),

wherein said system is configured to cause said transceivers to transmit and receive signals at an initial rate and to adapt said initial rate based upon an error condition (Figures 3-9) by causing said transceivers to transmit and receive at different rate (column 5 line 33-47, column 13 line 35 to column 18 line 3, and column 19 line 27-35).

2). With regard to claim 2, Alb et al discloses wherein said error condition is a failure to synchronize a received signal (column 5 line 33-47, column 13 line 35 to column 18 line 3, the error account and SNR of the received signal can be the results of loss of synchronization).

3). With regard to claim 3, Alb et al discloses wherein said system is further configured to calculate an error coefficient (SNR or BER is calculated, Figures 5-9, column 13 line 35 to column 18 line 3) based on said received signals, and said error condition comprises said error coefficient exceeding a predefined range (Figure 5, threshold is used for adjusting the rate).

4). With regard to claim 9, Alb et al discloses a rate adaptive method for operating an optical communication network (Figures 3-10, column 4, line 20-24) comprising:

transmitting data at an initial rate (Figures 3-9, transmitter 310 and 410 transmit signal at a initial rate, and the BER or SNR is calculated for changing of rate, column 5 line 33-47, column 13 line 35 to column 18 line 3, and column 19 line 27-35),

receiving said data at initial rate (Figures 3-9, receiver 305 and 405 receive signal at a initial rate, and the BER or SNR is calculated for changing of rate, column 5 line 33-47, column 13 line 35 to column 18 line 3, and column 19 line 27-35),

evaluating said data to determine if an error condition exists (Figures 5-9, column 13 line 35 to column 18 line 3, and column 19 line 27-35), and

adapting said rate based upon said evaluation by transmitting and receiving at different rate (Figures 5-9, column 13 line 35 to column 18 line 3, and column 19 line 27-35).

5). With regard to claim 12, Alb et al discloses an optical transceiver module (Figures 3-10, column 4, line 20-24) for a rate adaptive system for communication networks comprising:

means (305 and 405 in Figures 3 and 4, column 4, line 20-24) for transmitting a signal via a link at a plurality of optical signal rates,

means (310 and 410 in Figures 3 and 4, column 4, line 20-24) for receiving an optical signal transmitted at said plurality of optical signal rates,

means for determining an error condition Figures 5-9, column 13 line 35 to column 18 line 3, and column 19 line 27-35), and

means for adapting an optical signal transmission rate based upon the error condition by transmitting and receiving at different rate (Figures 5-9, column 13 line 35 to column 18 line 3, and column 19 line 27-35).

4. Claims 4, 5 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Alb et al (US 6,760,391) as applied to claims 1 and 9 above, and in view of Gfeller (US 5,808,760).

Alb et al discloses all of the subject matter as applied to claims 1 and 9 above.

Alb et al discloses wherein said initial rate is lowered in response to said error condition (Figures 5-9, column 5 line 33-47, column 13 line 35 to column 18 line 3).

But, Alb et al does not expressly disclose that the initial rate is lowered according to predefined percentages of the initial rate; wherein said percentages are selected from the group of 75, 50, and or 25 percent of said initial rate

However, Gfeller, in the same field of endeavor, discloses a four predetermined rates (10 MBPS, 1 MBPS, 100 KBPS and 10 KBPS in Figure 6, column 10, line 3-9). Gfeller provides an enhanced flexibility in system design and simplification of integration of systems operating with different data rate. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the rate adaptive system taught by Gfeller to the optical communication system of Alb et al so that an enhanced flexibility in system design and simplification of integration of systems operating with different data rate can be obtained.

Although Alb et al and Gfeller don't disclose the specific percentages, such limitations are merely a matter of design choice and would have been obvious in the system of Alb et al and Gfeller. Gfeller discloses a four predetermined rate (10 MBPS, 1 MBPS, 100 KBPS and 10 KBPS in Figure 6, column 10, line 3-9). The limitations in claims 4, 5 and 10 do not define a patentably distinct invention over that in Alb et al and

Gfeller since both the invention as a whole and Alb et al and Gfeller are directed to downshift the rate in predetermined percentages while link failure occurs. Therefore, to downshift by 75, 50 and 25 % or other percentages would have been a matter of obvious design choice to one of ordinary skill in the art.

5. Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Alb et al (US 6,760,391) as applied to claim 1 above, and in view of applicant admitted prior art (AAPA: Brief Description of Related Development, page 2 line 1-7) and Stener (US 6,690,650).

1). With regard to claim 6, Alb et al discloses all of the subject matter as applied to claim 1 above. But Alb et al does not disclose wherein said initial rate is 10 Gb/s.

However, Stener, in the same field of endeavor, discloses that the initial rate is set to the highest possible rate (the initial rate is set to 100 Mb/s, if link failure, the rate is downshifted to 10 Mb/s, column 5, line 38-59). As admitted by applicant: "currently there is a vast network of installed optical fiber links of various lengths and bandwidth all of which are capable of handling a variety of transmission rates from a few Gb/s to as high as many 10 of Gb/s. Installing a new network of optical components all capable of operating at a higher transmission rate, for example, 10 Gb/s across the wide installed base of performances, is not economically feasible in today's climate. Customers are not willing to upgrade these links because they "may" have a low bandwidth fiber".

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to set the initial rate at the highest possible rate (e.g. 10

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Gb/s) as taught by Stener to the optical communication so that a best use of the optical resources can be obtained.

2). With regard to claim 7, Alb et al discloses all of the subject matter as applied to claim 1 above. But Alb et al does not expressly disclose wherein said system is configured to operate in an optical Ethernet network.

However, Stener discloses a system configured to operate in an optical Ethernet network (Figure 1, column 3, line 1-67). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the rate-adaptive system to an optical Ethernet network so that a best use of the optical resources can be obtained.

6. Claims 8 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Alb et al (US 6,760,391) and Gfeller (US 5,808,760) as applied to claims 1, 9 and 10 above, and in further view of Bremer et al (US 6,647,058).

Alb et al and Gfeller disclose all of the subject matter as applied to claims 1, 9 and 10 above. But Alb et al does not expressly disclose wherein said system is further configured to notify a network operator in the event of said error condition.

However, Bremer discloses a network management system (58 in Figure 2) used by a technician to target communication links that will benefit the most from power and/or data rate adaptation (column 9, line 43-46).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the network manager as taught by Bremer et al to

the communication system of Alb et al so that rate adaptation can be more efficiently managed, and any fault can be more easily identified.

7. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Alb et al (US 6,760,391) and admitted prior art (AAPA: Brief Description of Related Development, page 2 line 1-7) and Bremer (US 6,647,058).

Alb et al discloses a rate adaptive method for operating an optical communication network (Figures 3-10, column 4, line 20-24) comprising:

transmitting signals at an initial rate (Figures 3-9, transmitter 310 and 410 transmit signal at a initial rate, and the BER or SNR is calculated for changing of rate, column 5 line 33-47, column 13 line 35 to column 18 line 3, and column 19 line 27-35),

receiving said signals at said initial rate (Figures 3-9, receiver 305 and 405 receive signal at a initial rate, and the BER or SNR is calculated for changing of rate, column 5 line 33-47, column 13 line 35 to column 18 line 3, and column 19 line 27-35),

evaluating said signals to determine if an error condition exists (Figures 5-9, column 13 line 35 to column 18 line 3, and column 19 line 27-35), and

adapting said rate based upon said evaluation by transmitting and receiving at a different rate (Figures 5-9, column 13 line 35 to column 18 line 3, and column 19 line 27-35).

But, Alb et al does not expressly disclose that the signals are "test signals". However, Bremer et al, in the same field of endeavor, discloses a test data that can be used to try whether the test data support the data rate (column 6 line 30-43).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the rate adaptive system and the test signal as taught by Bremer et al to the system of Alb et al so that a best use of the optical resources can be obtained and any suspensions of communication can be avoided.

### ***Conclusion***

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Kleider et al (US 6,301,265) discloses an adaptive rate system and method for network communications.

Marchetto et al (US 5,914,959 discloses a communication system having an automatically selectable transmission rate.

Chow et al (US 5,479,447).

Kamalov et al (US 7,149,424).

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Li Liu whose telephone number is (571)270-1084. The examiner can normally be reached on Mon-Fri, 8:00 am - 5:30 pm, alternating Fri off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ken Vanderpuye can be reached on (571)272-3078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Li Liu  
August 3, 2007



KENNETH VANDERPUYE  
SUPERVISORY PATENT EXAMINER